



UNCLASSIFIED

GORDON RESEARCH CONFERENCES ON POLYMERS(W)

Final Project Report

AFOSR-TR- 87-0662

by

J. J. Aklonis

for the period 7 January 1985 to 6 April 1985

University of Rhode Island Gordon Research Conferences 125 Pastore Chemical Laboratory Kingston, RI 02881

AFOSR-85-0110

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MINTHERY J. KERPER
Chief. Technical Information Division

GORODN RESEARCH CONFERENCES

on

POLYMERS (W)

Grant No. AFOSR-85-0110

FINAL PROJECT REPORT

This grant provided essential financial support of the Gordon Research Conference on Polymers (W) which was held from January 7-11, 1985 at the Miramar Hotel in Santa Barbara, California. The objective of this Conference was to bring together scientists so that they could exchange recent research results and the Conference provided a mechanism for the development of close interactions between these scientists. The Conference was attended by 114 conferees. There were 65 scientists from industrial agencies, 15 government participants, and 34 conferees from academic agencies. In addition, there were participants from the following countries: France, Italy, Israel, Japan, Czechoslovakia, England, and West Germany.

Lectures were presented in several areas relevant to the theme of this conference. A copy of the program and participant list have been enclosed for your information.

The quality of all of the lectures was exceptionally high and considerable discussion followed each lecture. Many of the conferees expressed very favorable comments about the intellectual stimulation provided by this Conference.

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GORDON RESEARCH CONFERENCES

POLYMERS

July 1-5, 1985 Colby-Sawyer College, New London

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PROGRAM FOR THE 1985 GORDON CONFERENCE

POLYMERS (WEST)

January 7-11, 1985

J.J. Aklonis, Chairman I.C. Sanchez, Vice Chairman

Monday morning, January 7

Discussion Leader: D.R. Squire

U.S. Army Research Office (U.K.)

"Long Range Electronic Energy Transfer and A. Gupta

Quenching Processes in Aromatic Polymers"

Jet Propulsion Lab

M.A. Winnik *Fluorescence Studies of the Morphology of

Composite Polymer Materials*

University of Toronto

Monday afternoon, January 7

Discussion Leader: J. Moacanin

Jet Propulsion Lab

"Polymer-Biomembrane Interactions: Nature and

Consequences"

D. Tirrell

University of Mass.

"Alkyl Chain Flexibility in Liquid Crystal

Folymers via Deuterium NMR"

E.T. Samulski

University of Conn.

<u>Tuesday morning, January 8</u>

Discussion Leader: R.S. Porter

University of Massachusettes

Gels and "Fractal Concepts in Polymers,

Colloids"

H.E. Stanley

Boston University

"Computer Simulations of Fractal Structures in

Materials Science*

P. Meakin

E.I. duPont Co.

Tuesday afternoon, January 8

Discussion Leader: T.L. Smith

IBM Research Labs

The Retardation Spectrum of Amorphous

Materials Near T "

D. Plazek

U. of Pittsburgh

*Phase Equilibrium and Critical Phenomena in

Chemically Reactive Polymer Solutions*

J.C. Wheeler U.C. San Diego

Wednesday morning. January 9

Discussion Leader: N.W. Tschoegl

California Institute of Technology

MA Comparison of the Viscosity and Diffusivity

of Linear and Branched Polymers"

D. Pearson Exxon Research

"Properties of Ring Polymers"

A.J. Kovacs CRM/CNRS

Wednesday afternoon. January 9

Discussion Leader: M. Golub

Moffett Field

"Anionic Synthesis of Multiphase Copolymer

Systems"

J. McGrath

Virginia Polytech. Inst.

and State University

"New Polyaromatics"

J. Stille

Colorado State Univ.

Thursday morning. January 10

Discussion Leader: R.E. Robertson

Ford Motor Corporation

"Physical Aging of Polymers and their Blends"

W. Prest

Xerox Corporation

"A Fundamental Relation between the Breadth of the Relaxation Spectrum and Relaxation Time Scale: Application to Volume and Enthalpy Recovery, Nonlinear Stress-Strain Behavior, and Melt Rheology"

R. Rendell

Naval Research Lab

Thursday afternoon, January 10

Discussion Leader: I.C. Sanchez

National Bureau of Standards

"An Inorganic Analog of Polyethylene"

D.G.H. Ballard

New Sciences Group, ICI

Poster Session

Friday morning. January 11

Discussion Leader: W. Pavelich

Borg-Warner Chemical Company

"Structure and Properties of Segmented

Polyurethanes*

gmented W.J. MacKnight

University of Mass.

Order-Disorder in Block Copolymers

F. Bates Bell Labs

Poster Session

- 1. "Direct Evidence for Steric Stabilization of Colloidal Particles Using Block Copolymers", George Hadziioannou, IBM (San Jose)
- 2. "Phase Separation in Polyurethanes A Solid State Deuterium NMR Study", Lynn W. Jelinski, Bell Labs.
- 3. "Entrapment Functionalization of Polyethylene", Dave Bergbreiter, Texas A&M University.
- 4. "Isothermal and Non-isothermal Crystallization Kinetics of Poly(etheretherketone), PEEK", Peggy Cebe and Su-Don Hong, Jet Propulsion Laboratory.
- 5. "The Effect of Oxidation on the Electrical Properties of Conjugated Polymers and Intrinsic Conductors", John R. Reynolds, Univ. of Texas (Arlington).
- 6. "Experimental Study and Mathematical Modeling of Asymmetric Membrane Formation", David S. Soong, University of California (Berkeley).
- 7. "Will the Distribution of Relaxation Times Change in the Glassy State?", Shiro Matsuoka, Bell Labs.
- 8. "Spectroscopic Evidence for Ordered Non-Planar Conformations in an n-Alkane Chain", John F. Rabolt and R. J. Twieg, IBM (San Jose).
- 9. "Simultaneous Differential Scanning Calorimetry and Small Angle X-ray Scattering of Phase Transitions in Polymers", Tom P. Russell, IBM (San Jose) and Jeff T. Koberstein, Princeton University.
- 10. "Diffusion in Semi-dilute Polymer Solutions by Pulsed Field Gradient NMR", Eric Amis, USC.
- 11. "Dynamics of a Polymer in a Electric Field", Monica Olvera de la Cruz, NBS/UMASS, and J. Deutsch. ITP, Santa Barbara.
- 12. "Polymer Rheology and Entanglements", Michael Rubenstein, Bell Labs.
- 13. "Phase Separation Phenomena in PS/PVME Blends", Charles C. Han, NBS.
- 14. "Rejuvenation and Physical Aging of Polycarbonate Subjected to Simple Compression and Extension", G. Tevita, W. K. Moonan, and Thor L. Smith, IBM (San Jose).
- 15. "Electonic Excited State Transport as a Probe of Polymer Structure", Glenn H. Frederickson, Earl Data.

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